

## **REMARKS**

### ***Summary of Amendments/Status of Claims***

Pending independent claims 4 and 5 have been amended to limit the claimed subject matter to being a router cutter, and pending independent claim 20 has been amended to limit the claimed subject matter to being a miniature drill for processing printed circuit boards.

Claim 19 has been canceled as redundant over claim 5.

Claim 8 remains as presented previously, while claims 12, 13 and 16 remain in their original form.

New independent claim 25 has been added. Like amended claim 20, claim 25 is also directed to a miniature drill for processing printed circuit boards, but otherwise corresponds to amended claim 4.

Further by the present amendment, new dependent claims 26 through 29 have been added, each reciting a length limitation on the miniature drill or router cutter recited in its respective parent claim.

**Claims 4, 5, 8, 12, 13, 16, 20 and 25-29** are thus pending the Examiner's further consideration on the merits.

- The present amendments are fully supported by the specification as filed, in paragraphs [0005] and [0008], for example.
- Furthermore, although the present amendment adds one independent claim for a total of five pending independent claims, excess claim fees should not be due, because together with Applicant's amendment filed November 1, 2004, Applicant paid for three excess independent claims, and since then has canceled three and added one, allowing the possibility for filing two more independent claims as of the date of this paper.

### ***Claim Rejections – 35 U.S.C. § 102***

#### **Claim 4: Toshiba Tungalloy '685**

Claim 4 stands rejected under 35 U.S.C. § 102(b) as being anticipated by *Toshiba Tungalloy* (JP H08-092685).

Applicant notes that the present invention is directed to small-diameter machining tools of extended length. *Toshiba Tungalloy* is directed to coated, sintered alloys to which compressive stress is applied along the coating surface by either shot-peening or sand blasting. Applying such treating technologies to small-diameter, extended-

length machining tools that are the subject matter of the present independent claims would lead to a high probability of the treated tools breaking. Accordingly, the *Toshiba Tungalloy* teachings are inapplicable to the present invention.

In particular, claim 4 recites a router cutter consisting of a shank having a blade portion of 3.175 mm or less diameter. Imparting compressive stress in the manner taught in *Toshiba Tungalloy* to the machining tool of the present invention would very likely cause the tool to break. Thus *Toshiba Tungalloy* is inapplicable to the present invention as now claimed, at least for the reason that such an application would lead to unworkable implementations.

Accordingly, it is believed that the rejection of claim 4 under this section has been overcome.

Claims 5, 8, 13, 16 and 19: Kameoka et al. '668

Claims 5, 8, 13, 16 and 19 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Kameoka et al.* (U.S. Pat. No. 5,733,668).

By the present amendment, claim 19 has been canceled, rendering moot the rejection of that claim.

Applicant points out that *Kameoka et al.* discloses a thickness range of 3 to 30  $\mu\text{m}$  for the carbon layer, more preferably, a thickness of 5 to 20  $\mu\text{m}$  (column 7, lines 6 through 10). In contrast, according to the present invention as recited in claim 5, the hard-carbon thin film coating the router cutter has a thickness in the range of 0.05 to 0.2  $\mu\text{m}$ . *Kameoka et al.* does not disclose, teach, nor even suggest a carbon film coating at anywhere near the thinness of carbon film coatings according to the present invention.

Accordingly, inasmuch as *Kameoka et al.* is believed to be inapplicable to the subject matter set forth in claim 5, it is respectfully submitted that the rejection of claim 5 under this section has been overcome. Claim 5 distinguishing over *Kameoka et al.*, it follows that so do claims 8, 13 and 16, which each depend either directly or indirectly from claim 5.

***Claim Rejections – 35 U.S.C. § 103***

Claim 12: Toshiba Tungalloy '685 in view of Oskarsson '139

Claim 12 was rejected as being unpatentable over *Toshiba Tungalloy* in view of *Oskarsson* (U.S. Pat. No. 6,228,139).

Claim 12 depends from claim 4, which, for the reasons set forth above in addressing the § 102 rejection of the claim, is believed should be held allowable. It thus follows that claim 12 should be allowable insofar as its parent claim is.

Claims 5, 8, 13, 16, 19 and 20: Sathrum et al. '964 or Falabella '087 in view of Oskarsson '139

Claims 5, 8, 13, 16, 19 and 20 were rejected as being unpatentable over *Sathrum et al.* (U.S. Pat. No. 6,139,964) or *Falabella* (U.S. Pat. No. 5,763,087) in view of *Oskarsson*.

By the present amendment, claim 19 has been canceled, rendering moot the rejection of that claim.

Applicant notes that neither *Sathrum et al.* nor *Falabella* teaches the desirability of employing coating films of the thinness that is according to the present invention. Hence, it is respectfully submitted that the Office's cited combination of references would not lead a person skilled in the art to arrive at the present invention as recited in independent claims 5 and 20, and hence, neither would the person skilled in the art be led to the present invention as recited in claims 8, 13 and 16, which each depend either directly or indirectly from claim 5.

And since new claim 25 is a direct kin of both claims 4 and 20 as amended, it is believed that claim 25 should be held allowable for the same reasons, argued above, that claims 4 and 20 should now be.

### **Conclusion**

Accordingly, Applicant courteously urges that this application is in condition for allowance. Reconsideration and withdrawal of the rejections is requested. Favorable action by the Examiner at an early date is solicited.

Respectfully submitted,

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